

Satisfaction of the Elderly With Hearing Aid Provided in Tocantins State - Brazil

*Janaina Santo Amore de Carvalho**.

* Post-graduation Student of Audiology. Speech Doctor.

Institution: *CEDRAU - Centro Estadual de Diagnóstico e Reabilitação Auditiva do Tocantins*.
Center of Diagnosis and Hearing Rehabilitation.
Palmas / TO – Brazil.

Address for correspondence: Janaina Santo Amore de Carvalho – ARSO 23, Alameda 05, Lote 15 – Centro – Palmas / TO – Brazil – Zip Code: 77000-000 – Fax: (+55 63) 3218-7895 – E-mail: janasac@yahoo.com.br

Article received on September 10th, 2007. Article approved on October 16th, 2007.

SUMMARY

- Introduction:** Hearing loss affects thousands of Brazilians. This fact has forced the Department of Health (Ministério da Saúde) to create policies about the problem, which includes the concession of hearing aids.
- Objective:** The objective of this study was to evaluate the degree of satisfaction with hearing aids among users, who received them from the Department of Health of Tocantins/Ministério da Saúde, during January of 2004 through December of 2005.
- Method:** Forty elderly hearing aid users were selected to complete the Satisfaction with Amplification in Daily Life scale. This self-report inventory was developed by COX and ALEXANDER (1999) and was translated into Portuguese and modified according to individual's reality. Besides the Satisfaction with Amplification in Daily Life questionnaire, additional tools were used to help better understand the factors that interfere with the satisfaction with hearing aids.
- Results:** 85% of the evaluated individuals were overall satisfied with their hearing aids. Self-image and hearing impairment stigma appeared as the major aspects for their unhappiness.
- Conclusion:** It was identified the necessity to reconsider the importance of the selection of hearing aid types in concessions of Tocantins and also the need to organize orientation programs and auditory training groups during the process of election and adaptation of the hearing aids.
- Key words:** Presbycusis, Health public policy, Hearing aids, Consumer satisfaction.

INTRODUCTION

In 2000, *Ministério da Saúde (MS-Brazil)* approved the regulation SAS #432 (1), which focused on the social importance of hearing impairment consequences and on the need to enlarge the hearing aid concessions to patients who are assisted in public hospitals (*SUS*). The following-up and rehabilitation program for those individuals, however, have not gone up in the same rate, so hearing aids have become underestimated and/or hardly used.

In 2004, with the purpose of strength hearing impairment care, it was established the *Política Nacional de Atenção à Saúde Auditiva* (National Policy on Auditory Health) through regulations *GM# 2073* (2) and *SAS# 587* (3). According to this policy, there might be intervention measures on the natural background of hearing impairment, through actions on promotion of health, protection, therapy (involving concessions of hearing aids when needed) and hearing rehabilitation.

Tocantins was qualified by the regulation SAS #432/00 in 2002 and nowadays has been managing to follow the regulations *GM# 2073/04* and *SAS# 587/04*.

From 2002 to 2005, in *Tocantins*, 1364 hearing aid wearers acquired prosthesis. Among adults, the wearers over 60 were in larger numbers.

In the elderly population, presbycusis is a type of acquired hearing loss. Neves and Feitosa (4) report over American studies which say that around 30% and 50% of people over 65 and 75 years old respectively, assured having some loss. In another sample with 3753 individuals aging from 48 to 92 years, there was a prevalence of 45.9% of hearing loss, which became worse towards aging.

Presbycusis is age-related hearing loss with gradually progressive inability to hear, especially high frequency sounds, bilateralwards. It damages consonant sound perception and consequently the speech understanding as a whole. Besides, there is decay on central auditory process as age approaches, as innate redundancy which depends on central and peripheral hearing integrity tends to diminish due to aging. In elderly people with hearing impairment that is more evident by the alteration on filtering and codifying peripheral hearing system, what it justifies an unequal degree on communication difficulty from those individuals. All this goes together with the fact that people hide their language external redundancy which depends on context clues (5).

Due to hearing impairment impact on psychosocial life of the elderly, the chance of wearing hearing aids, which helps communication by reducing loss degree, can motivate them improve their quality of life. Nevertheless, hearing aids do not restore normal hearing. They are designed to amplify and modulate sounds, but do not influence brain activity or wearer's behavior (6).

Many authors report several variables that are meant to be important for hearing aids' wearers regarding their adaptation process. They are: comfort sensation; mould fitting; hearing capacity on quite environment; possibility of conversation on noise environment; sound quality; technical assistance; easy cleaning; easy manipulation; and aptitude to wear and remove them (7,8).

Profits from hearing aids are connected to improvement on everyday life communication, which includes reduction on hearing inability and handicap of the wearers. Hearing aid outcome surpasses its profit (7) and satisfaction is the most reliable measure for it, as it consists of a number of factors, it holds dynamic feature, it depends on wearer's perception and attitude and moreover it is not connected only to hearing aid performance (7,9,10).

The target of this study was to observe satisfaction degree when wearing hearing aids by the individuals who were benefited of them through concessions from *Secretaria Estadual de Saúde do Tocantins (SESAU - TO)* – Health Department – granted by *MS* state government. For that, the Satisfaction with Amplification in Daily Life Scale (SADL) by Cox e Alexander, 1999 was used, by being translated into Portuguese to reach individual's reality. Other complemental tools favored better understanding of the associated factors towards hearing aid satisfaction and the search of new routes for better advantages from it.

METHOD

This research was first authorized by *SESAU-TO* manager. The project was registered on *CONEP* in February 22nd, 2006 and analyzed and approved by Research Ethics Committee of the *Universidade Católica - Goiás* (Catholic University) under # 0279 – April 20th, 2006. And volunteers signed the Free and Clear Consent Term.

Sample selection and characterization

From 2002 to 2005, *SESAU - TO/MS* provided hearing aids to 1364 wearers.

This study considered concessions from January 2004 to December 2005, because, by that time, *SESAU-TO/MS* actions and hearing aids suppliers were already consolidated, which aimed a better assistance for the wearers.

All selected individuals were already wearing hearing aids for more than 6 weeks, which is considered by the literature a suitable adaptation period for satisfaction evaluation.

They were selected from the data base of the *Coordenação de Órtese e Prótese - SESAU-TO* (Orthosis and Prosthesis Coordination). It was selected people who were 60 or over and lived in *Palmas-TO*. Due to the high number of individuals living in that city and to the easy contact with them, what it is totally necessary in order to guarantee data reliability.

74 out of 129 individuals, who were selected, were not found due to home address change, wrong telephone number or no answer in return. From the 55 found individuals, 3 of them were not in physical condition to take part in the research. From the 52 ones who answered the questionnaire, 6 of them were not selected because they had difficulty in oral and written understanding and did not answer the questions reliably; 5 did not wear hearing aid properly, then did not have parameters to notice the positive and negative aspects of it, and 1 had congenital hearing loss. In this way, the research sample was done with 40 hearing aid's wearers.

Among studied people, 65% (n=26) were male and 35% (n=14) were female, aging between 62 and 87 years (average of 72.2 years).

According to DAVIS and SILVERMANN (1970) (11) and considering each individual's best ear, 12.5% presented normal tone average; 35.0% presented mild hearing loss; 42.5% had moderate hearing loss; 7.5% presented severe type and only 2.5% presented profound hearing loss. Regarding type of hearing disorder, 95% of them had sensorineural loss, and 5% of the remaining subjects presented mixed hearing loss. Audiometric configuration from 62.5% of individuals was descending type; from 17.5% was horizontal one; from 17.5% was irregular and, from 2.5% it was in inverted U.

All individuals wore retroauricular hearing aids, 85% was binaural hearing and 15% was monoaural hearing adaptations. The experience with hearing aids ranged from 6 to 11 weeks in 45% of the individuals and from 1 to 10 years in the remaining 55%. The daily period was very different when wearing it, but 65% of them wore it more than 4 hours a day.

Most of individuals (62.5%) wore digital technology hearing aids, 15% wore digitally programmed and 22.5% wore analogical ones. The devices were from different brands, their models did not represent much and none of them is high-performance considered.

Most of the elderly (60%), by themselves, went for the concession program. Some of them (32.5%) were helped by family and (7.5%) by professionals.

Regarding socialization, individual's profile was classified into three types: number of people who live in the same dwelling place, work and social group activity. Individuals who lived together with 2 or less people, did not work or attended any social group were considered of low socialization, who counted for 10%. Although those aspects are difficult to be evaluated, they were important to analyze the context in which the elderly lives and their needs of communication.

Material

Satisfaction of hearing aid's elderly wearers was evaluated through Satisfaction with Amplification in Daily Life - SADL (COX and ALEXANDER, 1999), which was translated into Portuguese to be in accordance with individual's reality. Both the original version and Portuguese translation of the questionnaire are available at www.ausp.memphis.edu/harl/sadl.html (12,13). It is composed by 15 questions and divided into four subscales: Positive Effect; Negative Features; Service and Cost and Personal Image.

Positive Effect consists of questions towards communication ability, sound localization and quality, as well as psychological questions. When developing SADL, authors noticed that such aspect when by itself, it is the one that interfere most on satisfaction range. Due to that, authors assigned more questions to this item: 2 of them are on acoustic profit of the hearing aid; 1 is on sound quality and the other 3 are on psychological aspects.

Negative Features consist of only three items, which investigate aspects different from prosthesis: performance in noise environment; microphonia and telephoning. These items are commonly identified as non-satisfactory by hearing aid's wearers and then this subscale was taken as a 'thermometer' of adaptation problems.

Service and Cost consist of three items, and 2 of which are related to hearing rehabilitation service and the other one to prosthesis cost.

Personal Image presents three items which research wearer's self-image and hearing aid stigma. When developing SADL, such factors represented low importance and high satisfaction degrees, what can justify its exclusion from the final questionnaire. However, it was sustained by COX and ALEXANDER when realizing that, for some people, the appearance of devices and the impact they cause on others are expressive.

This study displays a new version of the questionnaire (Annex), which is adjusted grammatically to Portuguese language and to the aspects of the evaluated subjects' lives.

Scoring answers was also changed.

In the original version, there were A-to-G-multiple-choice questions: A: not at all; B: a little; C: somewhat; D: medium; E: considerably; F: greatly and G: tremendously. Afterwards, answers were scored from 1 to 7, and the latter referred to more satisfaction.

The current study displays numbered multiple answers (1 to 7), as slight differences among words from the original version could puzzle individuals and cause inconsistent score.

By considering the 15 items from the translated version, the score reported by the individuals in 11 items is the same as from the scoring scale and for the other 4 items (2, 4, 7 and 13) there is an inverted relation between score and scale, in other words, in these cases, score 1 gets 7 points and means more satisfaction.

To guarantee hearing aid sensitiveness towards wearer's dissatisfaction, it was also used a satisfaction scale with a single item as according to COX and ALEXANDER (2001), in the validation study of SADL (14).

The satisfaction scale of single item corresponds to a multiple-choice answer from question on general satisfaction degree with hearing aids. Answer choices are: very satisfied; satisfied, 'neither satisfied nor dissatisfied'; dissatisfied and very dissatisfied. Scoring ranges from 1 to 5 proportionally to satisfaction level.

Besides satisfaction scale, a complementary form was used to help on interpreting results and determining associated factors to satisfaction or dissatisfaction feeling of the wearers towards the aids. The form covers questions on: experience period with hearing aids; daily use; family relation; social activities; motivation by wearing aids; technical assistance; hearing loss features and reasons for not wearing them.

Procedures

SADL (translated version), satisfaction scale of a single item and complementary form were applied by two researchers who were directly in contact with wearers.

The researchers decided for reading questions out loud and write answers for all tools, in order to reduce understanding difficulties due to subjects' low education.

According to COX and ALEXANDER (7), answers obtained after SADL being applied were scored from 1 to 7, in which the latter referred to more satisfaction. Afterwards, scores from the four subscales (Positive Effect; Negative Features; Service and Cost and Personal Image) were computed through arithmetic average from each one. Yet, global score refers to arithmetic average from the 15 questions of SADL.

The satisfaction scale of a single item was scored according to COX and ALEXANDER (14): scores are from 1 to 5 proportionally to satisfaction level, very dissatisfied to very satisfied respectively.

After computing subscale and global scores, each individual's scores were tabled and compared with Average Value table, standard deviation, 20^o and 80^o percentiles for the global and each subscale scores (15) (Table 1).

From reference values by COX and ALEXANDER (7), besides general satisfaction, it was established, subject's profile on the topics: Positive Effect; Negative Features; Service and Cost and Personal Image. Dissatisfied individuals were considered the ones who presented value lower than 20^o percentile. The ones who were above 80^o percentile value were considered very satisfied, and the ones between 20^o and 80^o were considered satisfied.

Global score data from SADL were compared to the scale of a single item. Super positioning results from the two scales confirmed subjects' answers towards hearing aid satisfaction. On the other hand, the inconsistency between two tools made the analysis of factor which interferes on satisfaction possible. For that, it was used further information from the individuals regarding: aid features; personal data; hearing loss (best ear) and socialization.

RESULTS

The Positive Effect subscale scores ranged from 2.67 to 7.00 (average: 5.66). Comparison between these results according to COX and ALEXANDER (7) showed that

Table 1. Values of average, standard deviation, 20° and 80° percentages for the global and each subscale scores of the SADL, Cox, RM and Alexander, GC (1999)

Score	N	Average	StandardDeviation	20° Percentage	80° Percentage
Global	53	4.9	0.8	4.3	5.6
Service and Cost	142	4.7	1.2	4.0	5.7
Positive Effect	257	4.9	1.3	3.8	6.1
Negative Features	256	3.6	1.4	2.3	5.0
Personal Image	103	5.6	1.1	5.0	6.7

Note: absent values of the item 14 (SADL) were excluded.

35% of the subjects were satisfied, 62.5% was not and 2.5% was dissatisfied regarding acoustic profit and psychological aspects of the aids (Graphic 1).

The Service and Cost subscale scores ranged from 2.67 to 7.00 (average: 5.61). Comparison between these results according to COX and ALEXANDER (7) showed that 47.5% of the subjects were very satisfied, 50% was just satisfied and 2.5% was dissatisfied regarding hearing rehabilitation and prosthesis cost (Graphic 2).

From the 40 subjects in the Negative Features, subscale scores ranged from 1.00 to 6.34 (average: 4.18). Comparison between these results according to COX and ALEXANDER (7) showed that 20% of the subjects were very satisfied, 75% was satisfied and 5% was dissatisfied regarding prosthesis problems, noise environment performance, microphonia and telephoning (Graphic 3).

From the 40 subjects in the Personal Image, subscale scores ranged from 3.00 to 7.00 (average: 5.30). Comparing such results according to COX and ALEXANDER (7), it is noticed that Personal Image topic presented more dissatisfied feeling people (37.5%). However, most of samples (47.5%) presented satisfied and 15% very satisfied regarding self-imaging and stigma towards hearing aid (Graphic 4).

General estimation of the SADL corresponded to Global score. Scores ranged from 2.80 to 6.80 (average: 5.28) According to COX and ALEXANDER (7), Global satisfaction with hearing aid level was 52.5% of satisfied and 40% very satisfied. Only 7.5% was dissatisfied regarding hearing aid (Graphic 5).

These results were compared with the Single Item Scale, in order to confirm satisfaction with aids degree and/or understand reasons and possible incompatibility between tools.

In the Single Items scale, answers varied among Very Satisfied (32.5%); Satisfied (55%); Neither Satisfied, nor Dissatisfied (10%); and Dissatisfied (2.5%). None of the individuals ticked on Very Dissatisfied. In accordance

with COX and ALEXANDER (14), each of the answers is numbered correlated: Very Satisfied =5; Satisfied =4; Neither Satisfied, Nor Dissatisfied =3; and Dissatisfied =2.

To make comparison of these scales with SADL easy, the same numbers were used to conditions of Very Satisfied, Satisfied and Dissatisfied, in accordance with COX and ALEXANDER (7) (Graphic 6).

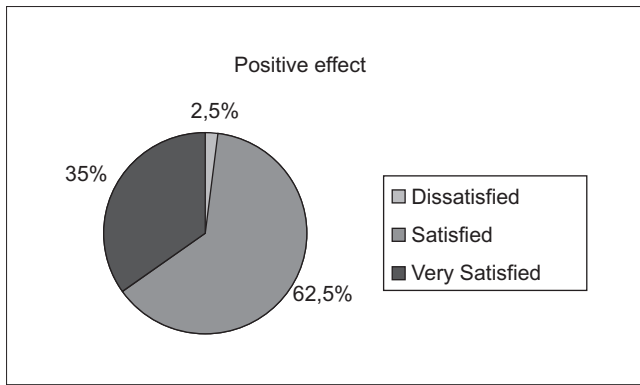
85% of the individuals were satisfied or very satisfied when evaluated by the two tools. For one subject, the two scales showed dissatisfaction, and for the other (12.5%) answers from SADL and Single Item Scale were not consistent and complementary form was suitable to understand inconsistency.

DISCUSSION

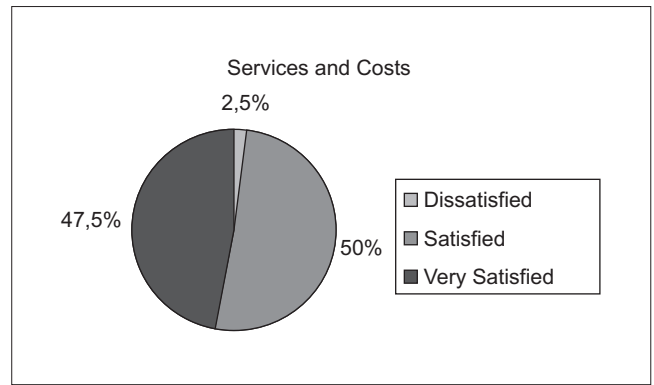
The literature shows that SADL is easy and quick to be applied (7,9,16). In practice, this did not always happen, but the application of questionnaire in person, what differs from the original proposes, reduced troubles with tools. Besides having reduced reading difficulty due to low education level, the selection of answers with the help of the researchers helped scoring them according to the scale and prevented void answers.

Regarding scoring, SADL was very practical. Besides its numbered rate helps to understand how the individual behaves in relation to a normal group and how he/she improves their satisfaction when wearing hearing aids after any alterations, such as changes on adjustment, type or technology of the device. This is also important to the wearers, who will be able to analyze their condition regarding both a standard and how to chose the type of device, as the evolution of conditions helps on how develop new assistance strategies.

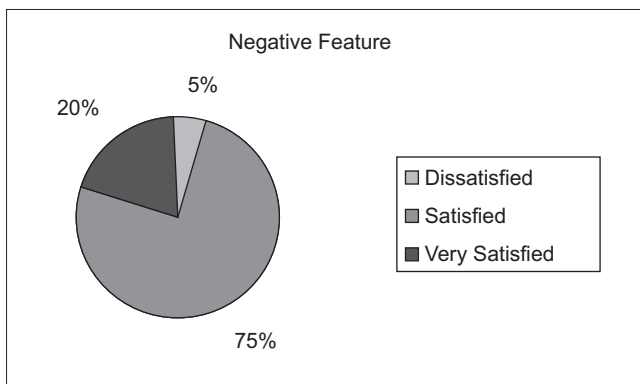
The average of individual scoring on Positive Effect subscale found in the current study is higher than the one regarding SADL's author's standard. Positive results from



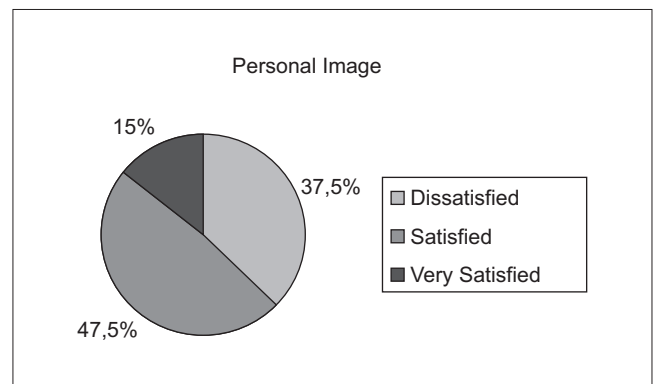
Graphic 1. Satisfaction level of the studied subjects on Positive Effect subscale of SADL (translated version), according to regulations by COX and ALEXANDER (1999).



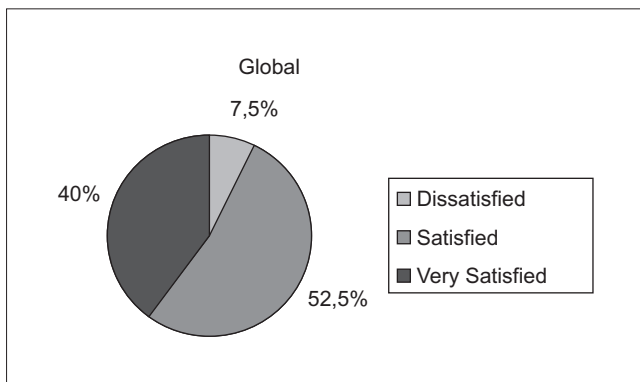
Graphic 2. Satisfaction level of the studied subjects on Service and Cost subscale of SADL (translated version), according to regulations by COX and ALEXANDER (1999).



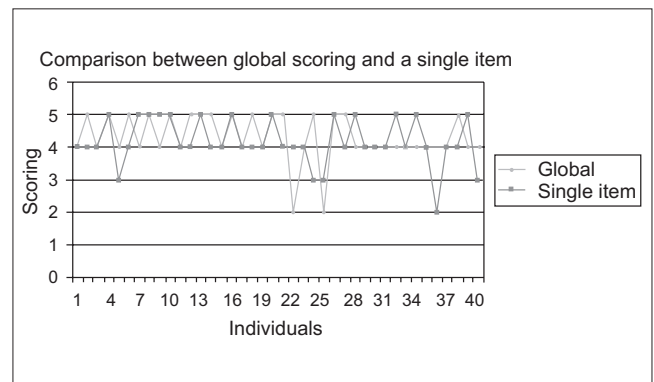
Graphic 3. Satisfaction level of the studied subjects on Negative Features subscale of SADL (translated version), according to regulations by COX and ALEXANDER (1999).



Graphic 4. Satisfaction level of the studied subjects on Personal Image subscale of SADL (translated version), according to regulations by COX and ALEXANDER (1999).



Graphic 5. Global Satisfaction level of the studied subjects on SADL questionnaire (translated version), according to regulations by COX and ALEXANDER (1999).



Graphic 6. Comparison between Global SADL results (translated version) and Satisfaction Scale of a Single Item for the studied individuals.

this item are confirmed by the fact that only one subject presents dissatisfied regarding acoustic benefit from the hearing aid and psychological aspects.

Developing studies of the SADL and its validation to different type of population (7,9) show that the

Positive Effect item influences on satisfaction development. The importance of such subscale is confirmed by the fact that the communication improvement and sound quality are early identified at the beginning of aid use and are little sensitive to changes as time goes by (17).

The question (#10) on naturally-heard sound when wearing hearing aid is considered as an SADL obstacle by the authors, due to the fact that it is difficult to be evaluated by an individual who had wore hearing aid for a long period of time (7). However, in this study, subjects did not present difficulty in describe aid sound quality, though most of them had been wearing it from 1 to 10 years.

The ones who expect more psychological and psychoacoustic profits from their aids before adaptation period tend to be more satisfied after wearing them (8), what does not mean that high expectation causes good results when wearing aids. It suggests there is influence from expectancy and acceptance of hearing loss before the hearing aid benefits (18). This information is in accordance with the data from this study concerning the self-driven attitude for searching concession program in *Tocantins*.

Service and Cost subscale presented a higher average value than the ones by COX and ALEXANDER (7). The high cost of a hearing aid is an expressive reason for not buying it (19). Thus, the difference in such scoring might be due to the subjects having received devices by the concession program – *SESAU – TO/MS*.

SADL's authors consider question #15 (on repairing hearing aids) as a limitation on the questionnaire, as it is difficult to be evaluated by the individuals who had their prosthesis for a short time (7). All subjects from this study, for being wearing aids for enough adaptation time, were able to report the need of maintenance of their devices,

Regarding SADL adaptation, the study showed costs on purchasing batteries and transporting to perform it in the responsible companies. Individuals cannot afford such expenses, although a possible explanation of the high rate of satisfaction on this subscale (satisfied: 50%; very satisfied: 47.5%) is that they are grateful for being conceded, and consider paying for the batteries and transport is worth when comparing the program benefits. This interpretation is from a social policy from the State that provides improvements and creates a dependence relation of the government.

Only one subject was dissatisfied with Service and Cost and Positive Effect subscales, what justifies a negative result on cost x benefit analysis.

This is also supported by COX and ALEXANDER (7) that studied the correlation between Positive Effect and Service and Cost, by pointing that complaints on acoustic and psychological issues are associated to ability of the

phonoaudiologist responsible for adaptation and quality of the hearing aids.

The average score of the Negative Features subscale by COX and ALEXANDER (7) was lower than the ones from this study. In both studies, the original and current, such subscale presented lower scoring.

Questions #7 and #11, on discomfort with aid volume increase and when talking on the phone, are also considered a problem by the SADL's authors. In this study, though, their limitations were overcome by the face-to-face way the questionnaire was applied. It was possible to score alternatives concerning maximum and minimum satisfaction, respectively, when there were observations saying that individuals do not change the volume and then aid does not whistle or they do not wear it when on the phone. The literature supports the strategy of pointing maximum satisfaction alternative (question #7) when individuals wear automatic hearing aids (9).

According to SADL's authors, Negative Features subscale covers items that are usually unsatisfactory for wearers and are also a 'thermometer' for adaptation problems. The difficulty in talking on the phone is an important point for dissatisfaction rates (9).

The average obtained from Personal Image subscale was little lower than the one by the authors. In the original and others studies, this subscale presented the highest scoring (7,10). Yet, in the current one, Personal Image was the second lowest and the only one below with average by COX and ALEXANDER (7).

Personal Image subscale refers to wearer's self-image and hearing aid stigma. Hearing aids might give an impression of incapacity, which is a serious obstacle for a successful result on amplification and that is reinforced by the fact that new wearers has lower expectancy than the experienced ones (8).

The prejudice against hearing loss and hearing aids is highly mentioned in the literature. Authors report that the ones who do not wear aids support the stigma as a reason, the elderly denies them for being 'visible', then making hearing loss clear (19).

All subjects from this study wear retroauricular-like hearing aids, which are more visible. It was also noticed that dissatisfied individuals with Personal Image are highly socialized according to data from Complementary Form, what suggests that appearance concern belongs to these ones.

The high rate of dissatisfaction with Personal Image suggests another type of hearing aids from the concession

program and also an addition of programs on hearing training and orientation starting before wearing aids and spreading up to total adaptation of them. Those actions might be useful to clear up the use and prejudice against hearing aid, besides they help on how to handle the devices and how to communicate.

Regarding Global Satisfaction, the average obtained was higher than the one by COX and ALEXANDER (7). Comparing Global score with Scale of Single Item was useful to clarify cases of neighboring scoring, by helping to better understand the influence of each subscale in the questionnaire, besides the single item is easy to be applied, and that is why it is used together with SADL. According to SADL's authors, scores from Global, Positive Effect and Service and Cost subscales are more reliable than the ones from the Negative Features and Personal Image subscales. However, in the current study, Personal Image subscale was more important for some subjects. This datum is in accordance with findings in the literature that indicate influence of psychological and subjective factors such as hearing aid expectancy and hearing loss acceptance (18,19).

Comparing results from Global Score of SADL and Scale of a Single Item, it was noticed that the satisfaction rate in this study was high (85%). The original study (7) showed 70% of Global Satisfaction on SADL and other researchers reported 76% among hearing aid wearers (18).

Some reasons can be listed when considering the high rate of satisfaction of the studied groups from their personal features, from hearing loss and from hearing aids.

Most of individuals (67.5%) are up to 75 years old. The ones belonging to this age-group is more likely to face adaptation problems of the hearing aids. Many of them (60%) searched for the concession program (*SESAU- TO/MS*) by themselves. This shows action-taking by most of subjects in order to solve health problems, contributing for a positive outcome. Just some of the individuals who are aware of their hearing loss and of the psychological impact when wearing hearing aids search for help (8).

Another fact for the high level of satisfaction, in this study, is that 90% of samples show that the individuals are socialized. Social life raises more chances of communication and exposes individuals to different hearing situations. Many authors report positive relation of satisfaction with hearing aids and social support (18,19).

The current study also shows that 65% of the individuals reported wearing hearing aids for 4 hours a day, what means a good result when wearing hearing aids (18).

Regarding hearing loss features, 90% of the subjects presented normal, mild and moderate tone average. That might have provided good satisfaction results as hearing aid performance is worse when hearing loss is more severe. Besides, most of the devices (62.5%) of the studied individuals are digital. They provide better sound quality when compared to analogical technology devices or digital-programmed ones.

Even with all these positive aspects, it is necessary to discuss if a high rate of satisfaction (92.5% on Global Score – SADL) correspond to reality.

Although the hearing aids were conceded by the National Government, the State Government takes advantage of such program to persuade people of the provision idea. Then, it is set a subordinate and dependence relation between citizens and government.

Individuals were conceded of hearing aids through Regulation SAS#423/00, which did not guarantee diagnosis or follow-up, so, they did not go through a proper process of selection and adaptation with the hearing aids. These aspects together with political context (in *Tocantins*) suggest that the high level of the individuals' satisfaction expresses their gratitude to concession program and their fear for not being benefited anymore if gratitude is not expressed. During questionnaire application, professionals tried to control such issues by explaining the targets of the study to subjects. However, the fact that the researchers were federal government employees, individuals might have felt embarrassed, even if they did not neglect information intentionally.

CONCLUSION

The current study showed a high level of satisfaction with hearing aids by the elderly who was conceded by *SESAU- TO/MS*.

SADL scale, for being short, clinical use-aimed and provides objective measures and not dependent from satisfaction topics, represented a suitable tool to measure satisfaction with hearing aids.

There was a high rate of satisfaction with hearing aids in all topics of SADL. Personal Image subscale presented the highest number of dissatisfied people, and this might be related to the type of retroauricular device.

The Scale of a Single Item and Complemental Form provided a proper interpretation of SADL scores as well as a better understanding of aspects associated to satisfaction. Variables such as age, self-driven attitude to prosthesis,

socialization, hearing loss degree and hearing aid technology favored the high level of satisfaction.

Results of this study suggest the need of another type of hearing aids from the concession program by *SESAU-TO/MS*, as well as the development of an orientation program to hearing aid's wearers and applicants in order to adjust their expectancies to reality.

REFERENCES

1. Brasil. Ministério da Saúde. Portaria n^o 432, de 14 de novembro de 2000. Institui a política nacional de atenção à saúde auditiva. Disponível em: <<http://dtr2001.saude.gov.br/sas/PORTARIAS/PORT2000/PT-432.htm>>. Acesso em: 26 out 2005.
2. Brasil. Ministério da Saúde. Portaria n^o 2.073/GM de 28, de setembro de 2004. Institui a política nacional de atenção à saúde auditiva. Disponível em: <<http://dtr2001.saude.gov.br/sas/PORTARIAS/PORT2004/GM/GM-2073.htm>>. Acesso em: 15 out 2004.
3. Brasil. Ministério da Saúde. Portaria n^o 587, de 07 de outubro de 2004. Determina a organização e a implantação das redes estaduais de atenção à saúde auditiva. Disponível em: <<http://dtr2001.saude.gov.br/sas/PORTARIAS/PORT2004/PT-587.htm>>. Acesso em: 15 out 2004.
4. Neves VT, Feitosa MAG. Envelhecimento do processamento temporal auditivo. *Psic.: Teor. e Pesq.* set/dez 2002, 18 (3). Disponível em: <<http://www.scielo.br/>>. Acesso em: 28 set 2006.
5. Russo ICP. Distúrbios da audição: a presbiacusia. In: Russo ICP. *Intervenção fonoaudiológica na terceira idade*. Rio de Janeiro: Revinter; 1999, pp. 51-82.
6. Gil D. *Treinamento auditivo formal em adultos com deficiência auditiva*. São Paulo, 2006, p. 181, (Tese de Doutorado - Universidade Federal de São Paulo).
7. Cox RM, Alexander GC. Measuring satisfaction with amplification in daily life: the SADL scale. *Ear Hear.* 1999, 20(4):306-20.
8. Cox RM, Alexander GC. Expectations about hearing aids and their relationship to fitting outcome. *J Am Acad Audiol.* 2000, 11(7):368-82.
9. Hosford-Dunn H, Halpern J. Clinical application of the satisfaction with amplification in daily life scale in private practice I: statistical, content, and factorial validity. *J Am Acad Audiol.* 2000, 11(10):523-39.
10. Veiga LR, Merlo ARC, Mengue SS. Satisfação com a prótese auditiva na vida diária em usuários do Sistema de Saúde do Exército. *Rev Bras Otorrinolaringol.* 2005, 71(1):67-73.
11. Santos TMM, Russo ICP, Borgianni LMB. Interpretação dos resultados da avaliação audiológica. In: Santos TMM, Russo ICP (Org). *Prática da audiologia clínica*. 5. ed. rev. e ampl. São Paulo: Cortez; 2005, pp. 291-310.
12. Cox RM, Alexander GC. SADL questionnaire. Disponível em: <<http://www.ausp.memphis.edu/harl/downloads/sadl15.pdf>>. Acesso em: 10 mar 2006.
13. Cox RM, Alexander GC. Translation of SADL questionnaire: brazilian-portuguese. Disponível em: <<http://www.ausp.memphis.edu/harl/downloads/sadlfiles/sadl15-Brazilianportugese.pdf>>. Acesso em 10 mar 2006.
14. Cox RM, Alexander GC. Validation of the SADL questionnaire. *Ear Hear.* 2001, 22(2):151-60.
15. Cox RM, Alexander GC. SADL template. Disponível em: <<http://www.ausp.memphis.edu/harl/downloads/sadlplot.pdf>>. Acesso em: 10 mar 2006.
16. Humes LE, Wilson DL, Humes L, Barlow NN, Garner CB, Amos N. A comparison of two measures of hearing aid satisfaction in a group of elderly hearing aid wearers. *Ear Hear.* 2002, 23(5):422-7.
17. Mcleod B, Upfold L, Broadbent C. An investigation of the applicability of the inventory, satisfaction with amplification in daily life, at 2 weeks post hearing aid fitting. *Ear Hear.* 2001, 22(4):342-7.
18. Jerram JCK, Purdy SC. Technology, expectations, and adjustment to hearing loss: predictors of hearing aid outcome. *J Am Acad Audiol.* 2001, 12(2):64-79.
19. Garstecki DC, Erler SF. Hearing loss, control, and demographic factors influencing hearing aid use among older adults. *J Speech Lang Hear Res.* 1998, 41(3):527-37.

Annex

SADL QUESTIONNAIRE – translation and adaptation of SADL scale - Satisfaction with Amplification in Daily Life (COX and ALEXANDER, 1999).

Name:.....

Date of birth:

Phone #:

Brand /Type of hearing aid:

INSTRUCTION: I am going to read these questions out loud and ask your opinion on hearing aids. For each question you give a score from 1 to 7 according to advantage you get from the devices. (Instruction might be repeated to guarantee your understanding).

1. Do your hearing aids help you understand the people you talk with most often?
1 2 3 4 5 6 7.
2. Do you feel disturbed when hearing aids pick up sounds apart from the ones you want to hear?
1 2 3 4 5 6 7.
3. Are you really positive about wearing hearing aids?
1 2 3 4 5 6 7.
4. Do you think people notice your hearing problem when you wear your hearing aids?
1 2 3 4 5 6 7.
5. Do you think your hearing aids reduce the time you have to ask people to repeat what they say?
1 2 3 4 5 6 7. (Little) (Much)
6. Do you think it is worth wearing hearing aids?
1 2 3 4 5 6 7.
7. Do you feel disturbed when you turn the volume up of the hearing aids and they whistle?
1 2 3 4 5 6 7.
8. How satisfied are you by the appearance of your hearing aids?
1 2 3 4 5 6 7.
9. How confident are you when wearing your hearing aids?
1 2 3 4 5 6 7.
10. How natural is the sound from your hearing aids?
1 2 3 4 5 6 7.
11. How helpful are your hearing aids when you talk on the phone?
1 2 3 4 5 6 7.
12. Are you satisfied with the type of hearing aids provided for you by the professional?
1 2 3 4 5 6 7.
13. Do you feel less capable for wearing hearing aids?
1 2 3 4 5 6 7.
14. Is the cost of your hearing aids affordable for you?
1 2 3 4 5 6 7.
15. How satisfied are you with the number your hearing aids have to be repaired?
1 2 3 4 5 6 7.

Version in Portuguese uses is page.

Advertizing
space used in the portuguese version.